PETROLERA NACIONAL S.A.
Plaza Marbella, Piso 7
Panama
Panama

Saybolt
A CORE LABORATORIES COMPANY

Attention of : Ms. R. Rodriguez
Your reference : Sample Receipt No. 5536

Analysis Report

Report number	:	**13201/00030828.1/L/21**	Submitted date	:	2021-04-05
Main Object	:	Minera Panama ULSD (MSA) / Testing - April 2021	Sample submitted at	:	Saybolt Panama
Report Date	:	2021-04-07	Date received	:	2021-04-07
Date of issue	:	2021-04-08	Date completed	:	2021-04-07
Sample object	:	MSA	Sample number	:	11416070
Sample type	:	Submitted			
Sample submitted as	:	ULSD			
Marked	:	MSA received sample - for analysis only			

NAME		METHOD	UNIT	SPECS		RESULT
				Min	Max	
Gravity API at 60 °F	Q	ASTM D 4052	°API	32.0		36.1
Density at 15 °C	Q	ASTM D 4052	kg/m³			843.8
Free Water and Particulate Contamination (lab test)		ASTM D 4176				
Clear and Bright (procedure 1)			-		B&C	B&C
Test Temperature			°C			26
Color ASTM	Q	ASTM D 1500	-		2.5	<1.0
Water and Sediment	Q	ASTM D 2709	vol %		0.05	<0.01
Flash point (PM) procedure A	Q	ASTM D 93	°C	60		60.0
Sulphur (S)	Q	ASTM D 5453	mg/kg		15	7.6
Ash Content	Q	ASTM D 482	mass %		0.01	<0.010
Micro Carbon Residue (10% bottom)	Q	ASTM D 4530 / D 86	mass %		0.30	<0.10
Copper Strip Corrosion (3 hrs / 50 °C)	Q	ASTM D 130	-		2	1a
Kinematic Viscosity at 40°C	Q	ASTM D 445	mm²/s	1.9	4.1	2.470
Cetane Index	Q	ASTM D 976	-	45		47.3
Distillation	Q	ASTM D 86				
10% Recovered			°C		Report	202.1
50% Recovered			°C		Report	259.1
90% Recovered			°C	282	338	320.4
Final boiling point			°C		Report	348.9
Residue			vol %		2	1.5
Loss			vol %		2	0.5
Lubricity Test at 60 °C (Wear Scar Diameter) *		ASTM D 6079	µm		520	380
Conductivity at 25°C	Q	ASTM D 2624	pS/m	25		68
Biodiesel		ASTM D 7371	vol %		0.1	<0.10
Particle Count		ISO 4406				
>= 4 microns			pop/1mL			181.23
>= 6 microns			pop/1mL			90.27
>= 14 microns			pop/1mL			22.90

All results in this report refer to the sample(s) tested as taken or submitted like specified in this Analysis report. Uncertainties, available on request, apply in the evaluation of the test results. All tests are conducted according to the latest version of the methods, unless another version is specifically indicated. Where available and for convenience purposes, the tested sample has been checked for compliance with supplied specifications, without accepting any liability. In case of dispute or concern, we refer to the interpretation of test results as defined in ASTM D3244, IP 367, ISO 4259 or GOST 33701. This report shall not be partially copied and reproduced without the written permission of the laboratory.

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Sample submitted as	: ULSD		
Marked	: MSA received sample - for analysis only		

NAME	METHOD	UNIT	SPECS		RESULT
			Min	Max	
Contaminant code		-			15 / 14 / 12

** Analysis results are submitted by a third party laboratory.*

Lab comments:
Q: CNA Accreditation LE-002 is applicable for tests followed with a Q

Signed by: Everner Jimenez - Laboratory Manager/Assistant Mgr
Issued by: Core Laboratories Panama, S.A.
Place and date of issue: Panama City - 2021-04-08

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